

PAT-NO: JP02003142364A
DOCUMENT-IDENTIFIER: JP 2003142364 A
TITLE: METHOD FOR
RECTANGULAR LATTICE
DATA CONVERTING MASK
PATTERN FOR CHARGED
PARTICLE BEAM
EXPOSURE AND METHOD
FOR CHARGED PARTICLE
BEAM EXPOSURE USING
THE SAME
PUBN-DATE: May 16, 2003

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APPL-NO: JP2001333361

APPL-DATE: October 30, 2001

INT-CL H01L021/027 ,
(IPC): G03F001/16 , G03F007/20

ABSTRACT:

PROBLEM TO BE SOLVED: To assure the mask pattern dimensional accuracy, without generating under exposure region.

SOLUTION: When the width of a pattern element of a lattice pattern is W , the space width in between the pattern elements is S , a lattice pattern area density is α_p , the minimum value of a forward scattering strength is F_{fmin} , α_p , the position taking the minimum value is P , and the allowed lower limit value of the W and S is L_{min} , the α_p is represented by a function $D(W, S)$ from the geometrical relation of the lattice pattern, the forward scattering term of the energy

strength distribution function is surface-integrated, and the forward scattering strength at the position P is represented by the function $E(P: W, S)$. The method for rectangular lattice data converting the mask pattern for charged particle beam exposure comprises the steps of obtaining the values of the W and the S for satisfying the relational formula $D(W, S) = \alpha_p$ and $E(P: W, S) = F_{fmin} \cdot \alpha_p$ (S71, S72) for the given values of the α_p , F_{fmin} and L_{min} (S70), converting the rectangular pattern to the lattice pattern (S74, S76) so as to satisfy $W > L_{min}$ and $S > L_{min}$ (S73, S75), and performing boundary-processing (S78).

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